

Litigation and the Mortgage Market: Evidence from Spain¹

Fernando Gómez-Pomar
Universitat Pompeu Fabra, Barcelona
(fernando.gomez@upf.edu)

Adrián Segura-Moreiras
Universitat Pompeu Fabra, Barcelona
(adrian.segura01@estudiant.upf.edu)

Rok Spruk
University of Ljubljana
(rok.spruk@ef.uni-lj.si)

Abstract: We examine how litigation affects the functioning of the mortgage market. To this end, we estimate the impact of rising litigation rates on the mortgage access and the overall market capitalization of mortgages for a panel of 50 Spanish provinces in the period 2008-2016. Our identification strategy exploits rich dynamics of past mortgage access and value as a potential source of endogeneity and reverse causation that could possibly taint the relationship between litigation and the mortgage market. Our dynamic panel-level fixed-effects estimates suggest that rising litigation rates across Spain tend to suppress mortgage access and have an adverse effect on the mortgage market capitalization. Our preferred specifications imply that 1 percentage point increase in litigation rate tends to reduce province-level mortgage access by 1.7 percent and dampen the province-level market value of mortgages by 1.4 percent after three years. The underlying estimates do not seem to be driven by high-leverage provinces such as Madrid and Barcelona, or by provinces with a favorable taxation on mortgage loans, such as the Basque provinces. We further examine some policy channels through which litigation may impact the mortgage market and find that some policy changes such as the code of good banking practices tend to reduce litigation whilst others have an opposite impact. Over time, civil courts have a tendency to become more effective in solving disputes, probably because of the repeated nature of mortgage-related suits that are brought as individual cases and are not aggregated in collective litigation.

Keywords: litigation, mortgage market, Spain.

JEL Codes: G21, K25, K41.

¹This research has greatly benefited from the comments made by Gabriel Doménech. The authors have no relevant financial interests to disclose that could have influenced this paper. We are grateful to Juan Mora-Sanguinetti who has provided us with the civil congestion rate by provinces.

1. Introduction: mortgage credit and the legal system

There seems to be little disagreement on the importance of law and legal institutions for access and terms of credit in the economy. How several elements and components of legal systems affect the supply of finance and credit in society is a major theme in empirical exercises in economics and law and economics. Among the various legal dimensions and their effects on credit provision that have been examined in the literature, we can mention foundational features of a legal system, such as the legal origin or tradition providing the broad shape of its legal institutions (La Porta et al., 1997, 1998), together with debt collection and enforcement mechanisms (Djankov et al., 2006, 2007; Gopalan, Mukherjee and Singh, 2016), bankruptcy institutions, their main orientation -protection of the distressed debtor or protection of creditor's rights- goals and functioning (Rajan and Zingales, 1995; Gropp, Scholz and White, 1997; La Porta et al., 1997, 1998; Giannetti, 2003; Claessens and Klapper, 2005; Quian and Strahan, 2007; Davydenko and Franks, 2008) and judicial efficiency (La Porta et al., 1997; Jappelli, Pagano and Bianco, 2005; Mora-Sanguinetti, Martínez-Matute and García-Posada, 2017; D'Apice, Fiordelisi and Puopolo, 2020) among those having received detailed and specific empirical attention.

The majority of the literature interested in the legal determinants of the volume and features of credit supply has focused on firm financing. We concentrate instead on mortgage credit to households.² We think the inquiry on how certain features of legal institutions affect mortgage credit is particularly relevant for a number of reasons. One is the size of the housing finance market and its importance for financial stability and economic welfare. Additionally, access to credit in this area is crucial to important social phenomena (as homeownership), since most households cannot purchase a home without a mortgage. Thus, credit markets are key for access to homeownership and to supply and prices in the rental housing sector.³ Moreover, mortgage contracts and their enforcement, and how they fare in court proceedings, are subject to extensive levels of *ad hoc* legal regulation in many, if not most, countries. When we present below the Spanish case and provide a comparison with the legal and institutional setting in the US and Germany, it will become apparent the degree in which laws and regulations specifically addressed to mortgage loans seem to dominate this area of the credit market.

Our study of mortgage credit availability and volume in Spain focuses on factors related to the functioning of the justice system, and more specifically, litigation rates in front of civil courts, as well as congestion rates in the same courts. Civil courts in Spain are those who have to interpret mortgage contracts, apply the rules in contract law and consumer law that govern them and preside over the judicial foreclosure proceedings in case of debtor's default.

² There are other contributions looking into how certain legal variables affect various features of mortgage credit. For instance, Li, White and Zu, 2011, and Morgen, Iverson and Botsch, 2012 analyze how a relevant change in US personal bankruptcy Law (the *Bankruptcy Abuse Prevention and Consumer Protection Act* (BAPCPA) in force since October 2005) affected mortgage defaults and subprime mortgage foreclosures, respectively. Li, Tewari and White, 2019 analyze the impact of the residential mortgage strip down on availability of mortgage credit and interest rates.

³ See, Gete and Reher (2018). The housing market, in turn, has important implications for macroprudential financial policy and for macroeconomic outcomes more generally.

We examine empirically the contribution of the levels of litigation and congestion rates in Spanish civil courts to availability and volume of mortgage credit. Our dataset comprises the 50 Spanish provinces for the period 2008-2016. Our sample period starts with the eruption of the housing and mortgage bubble in Spain, goes through the bottom of the financial and mortgage crisis and the recovery in the economy, comprising financial and housing markets, after 2014.

In the paper we exploit within-province variation in the litigation rates as a source of variation in the number and volume of mortgages in the different provinces, controlling for other relevant variables for access and amount of credit to households.

Our results show a (statistically and economically) significant impact of litigation rates on both availability and volume of mortgage credit. We also use data on congestion rates of civil courts in the various provinces and find a similar strong contribution of judicial efficiency and backlogs on access and total value of mortgage credit.

Moreover, we examine a number of legal policy channels in the area of mortgage credit (and related areas) that affected litigation and congestion rates in Spanish civil courts. Specifically, we look into three important legal developments: (i) the introduction in 2012 of a (non-mandatory, but strongly recommended and, in fact, voluntarily adopted by all financial institutions) code of good banking practices concerning mortgage renegotiation and enforcement *vis-à-vis* socially and economically vulnerable households; (ii) the notorious 2013 case *Aziz* from the Court of Justice of the European Union (CJEU)⁴, which called for new consumers' rights in enforcement proceedings and challenged certain standard terms in Spanish current contract practice, all of it based on the European Unfair Contract Terms Directive; and (iii) the 2015 introduction in Spain of debt discharge and fresh start in bankruptcy for individual debtors.⁵ We show how the code of good mortgage practices and the fresh start reduced demand for civil litigation, whereas the *Aziz* case opened the gate for increased levels of litigiousness before Spanish civil courts. As to judicial congestion rates, the results are less clear cut, and their interpretation is not straightforward, given the theoretical hypothesis as to the likely effect of the three legal policy changes.

Our analysis does not only allow us to establish the contribution of judicial efficiency to the availability and size of mortgage credit, but also highlights the importance of the justice system as the transmission channel of policy changes in the laws and regulations governing (even indirectly) mortgage credit to the functioning of the mortgage market. Thus, the impact of legal change on the operation of courts is a necessary dimension to consider when thinking about legal reform in the mortgage market.

⁴ Joined cases C-537/12 and C-116/13 of the CJEU, 14 March 2013, *Mohamed Aziz v Caixa d'Estalvis de Catalunya, Tarragona i Manresa (Catalunyacaixa)*.

⁵ Several commentators had observed that the lack of incentives for individual bankruptcy proceedings (very often intertwined with the business bankruptcy of the small firm owned by the individual) de facto made mortgage enforcement an alternative insolvency institution: Celentani, García-Posada and Gomez (2012); García-Posada and Mora-Sanguinetti (2012).

The Spanish case is, we believe, both representative and relevant for debates in other European countries. First, because the Spanish mortgage system has been at the forefront of the European legal debate on unfair terms in consumer financial contracts in recent years. In terms of the preliminary reference activity of the CJEU in the past decade, it is fair to say that a large number of the landmark consumer decisions of the CJEU concerning unfair contract terms have been prompted by preliminary references by Spanish Courts arising from Spanish litigation over mortgage credit contracts.⁶

Second, because the Spanish case may be representative of economies and legal systems with large degrees of homeownership, large and developed mortgage markets providing access to housing to families, and who suffered a severe impact on mortgage defaults as a result of the financial crisis. In the aftermath of the financial crisis, the mortgage market contracted very significantly and started to recover only around 2014, although reaching notably more modest levels than in the pre-crisis period⁷.

Third, due to the importance of litigation concerning the terms and conditions of the mortgage loan contract and the rights of the mortgage debtor in foreclosure proceedings following a default in the loan. The aftermath of the financial crisis experienced a large number of defaults in mortgage contracts⁸ and home foreclosures by banks and savings banks, and a large amount of litigation by financial consumers.

Litigation on mortgage contracts before the Spanish courts (and also before the CJEU, with particular intensity after 2013), has developed along two lines⁹. The first, and in large numbers, concerns litigation challenging mortgage eviction processes under Spanish civil procedure laws, on the basis that they did not afford consumers the required level of consumer protection provided for in European legislation¹⁰. A second large group of cases refers to litigation on the validity of a number of contract terms: so-called ‘floor clauses’ for adjustable interest rates in mortgage contracts¹¹; clauses determining interest rate in case of loan default¹²; acceleration clauses¹³;

⁶ See, for the interaction between Spanish Courts and the CJEU, Gómez Pomar and Lyczkowska, 2017.

⁷ The peak in the number of residential mortgages was reached in 2006, when 1,342,171 mortgages were granted. The number went to a low of slightly less than 200,000 in 2013, and going up to over 360,000 in 2019 (official figures from the *Instituto Nacional de Estadística*, the Spanish National Statistical Institute).

⁸ The number and social impact of mortgage foreclosures went down after its peak in 2012-2013, owing to the improved economic and employment situation. The data available show a significant decrease in this period from over 120,000 mortgage foreclosures per year to around 27,000 in the year 2019.

⁹ See, Gómez Pomar and Lyczkowska, 2017; Gómez Pomar and Artigot, 2020.

¹⁰ The most prominent European case in this regard is precisely the *Aziz* case.

¹¹ Floor clauses are clauses in mortgage loan contracts with adjustable interest rates (the vast majority in Spain during the housing boom 1998–2007, and even later) where the variable interest rate of the mortgage, which is defined typically by an external rate (Euribor) plus an agreed spread, cannot go below a minimum level or floor, that is fixed at a certain rate (say, 3 or 4 per cent) in the contract. These clauses reached the CJEU in the *Gutiérrez Naranjo* case: Joined cases C157/15, C307/15 and C308/15 *Francisco Gutiérrez Naranjo vs Cajasur Banco SAU (C154/15), Ana María Palacios Martínez v BBVA S.A. (C307/15) and Banco Popular Español S.A. v Emilio Irlés López and Teresa Torres Andreu (C308/15)* [2016] OJ C 53/8.

¹² An issue that reached the CJEU in the *Aziz* case and in *Banco Santander SA v Mahamadou Demba and Mercedes Godoy Bonet and Rafael Ramón Escobedo Cortés v Banco de Sabadell SA* (Joined cases C-96/16, C-94/17).

¹³ In the CJEU, *Abanca Corporación Bancaria SA v Alberto García Salamanca Santos and Bankia SA v Alfonso Antonio Lau Mendoza and Verónica Yuliana Rodríguez Ramírez* (Joined cases C-70/17, C-179/17).

clauses on tax and administrative expenses associated with the mortgage contract¹⁴; clauses choosing a reference index for adjustable interest rate different than EURIBOR, called IRPH¹⁵.

To be sure, we are not the first to have looked into the economic and credit consequences of judicial efficiency in Spain, nor the Spanish institutional environment of mortgage credit. García-Posada and Mora-Sanguinetti, 2015 find that higher judicial efficiency increases the entry rate of firms and more particularly, of entrepreneurs and the self-employed, while it has no effect on the exit rate. Mora-Sanguinetti, Martínez-Matute and García-Posada, 2017 show how a rise in the clearance rate of contract enforcement cases by civil courts -which constitute a “special” and quicker form of civil judicial proceedings, as is also the case with mortgage foreclosure- increases the ratio of total credit to GDP. In turn, García-Posada and Mora-Sanguinetti, 2012 test a hypothesis on the extremely low usage rate of the bankruptcy institution in Spain compared with other neighboring countries (and both before and after the financial crisis) based on the low efficiency of the Spanish bankruptcy system relative to that of an alternative insolvency institution, the mortgage system, and the lack of appeal of the Spanish personal bankruptcy law.

In a very recent paper, Martinez-Miera et al. (2020) analyze the overall effects of a Spanish policy that consisted in shifting statutory incidence of (mortgage) taxes. In particular, they studied the economic incidence of a policy change in November 2018 that shifted the mortgage tax from being levied on borrowers to be levied upon lenders. They find out that, after the policy was introduced, the average mortgage rate increased by absorbing approximately the 80% of the tax base. This effect is found to be heterogeneous between borrowers.

Our paper, to the best of our knowledge, is the first to analyze how litigation and congestion rates affect availability and magnitude of mortgage credit to households, and to explore how relevant legal changes surrounding mortgage credit impact the functioning of the judicial system. Our empirical findings have, we believe, consequences for the intelligence of policies in the area of consumer mortgage credit contracts and their enforcement, as well as for their future design.

The paper is structured as follows: In section 2, we provide an overview of the Spanish legal and institutional background on mortgage credit contracts and enforcement. Section 3 provides a brief comparative outlook with respect to other legal systems, namely the US and Germany. Section 4 introduces the data for our empirical exercise. Section 5 presents and defines the identification strategy. Section 6 discusses the relevant results, and the last section briefly concludes.

2. Spanish Legal Background

2.1. The mortgage as a security right

¹⁴ In the CJEU, *CY and Others v Caixabank SA and Banco Bilbao Vizcaya Argentaria SA* (Joined cases C-224/19 and C-259/19).

¹⁵ In the CJEU, *Marc Gómez del Moral Guasch v Bankia SA* (case C-125/18).

Under Spanish Law, and similarly to many other European and non-European legal systems, a mortgage¹⁶ is a right *in rem*, created for the security of the satisfaction of a given legal obligation. In most cases, the mortgage is created over a real estate asset in order to provide security for a loan granted to obtain the funds to pay the purchase price of the mortgaged real estate. The security provided by the mortgage does not limit the personal liability of the debtor (the borrower of the loan in the typical case), since mortgages in Spain are recourse mortgages¹⁷, and although Spanish Law allows parties to agree to non-recourse mortgages, these are extremely infrequent in market practice, perhaps as a result of adverse selection issues.¹⁸

The mortgage creditor enjoys significant advantages in terms of credit recovery. Not only she has a legal right to be paid over the mortgaged property with preference over any other creditor of the borrower, but in case of default on the loan, she has access to speedy enforcement proceedings both in court (the vast majority of foreclosure proceedings) or out of court (through a public auction process overseen by a public notary). The mortgage creditor also enjoys a privileged position *vis-à-vis* the mortgage asset in case of bankruptcy proceedings affecting the debtor.

The most common form of enforcement of mortgage credit rights in case of default was (and is) a speedy and simplified judicial enforcement proceeding (called in Spain “*procedimiento ejecutivo*”), that ends in a public auction supervised by the court. The mortgaged property may be auctioned off to a third party, and the proceeds of the sale will be placed at the disposal of the suing creditor up to the amount that fully settles the borrower’s debt (the remainder, if any, will go to the mortgage debtor). Alternatively, when there are no third-party bidders, the creditor herself may be attributed the property for 70%¹⁹ of the value²⁰ of the mortgaged property in exchange for setting-off mortgage debt in the corresponding amount. Spanish judicial mortgage enforcement was, prior to 2012 or 2013 one of the most effective and timely among the European systems, at the level of Germany or the Netherlands, who in general have a more efficient judicial system. This situation has been altered very significantly after legal changes and high litigation rates occurring in the aftermath of the mortgage foreclosure crisis that followed the burst of the financial bubble, and that will be described in the following sub-section. Allegedly, enforcement time for a mortgage in default has more than trebled as a result

As mentioned above, when the proceeds of the sale do not satisfy the entire debt outstanding, the creditor may pursue other assets (including future income) of the debtor. In 2013, a timid measure was introduced to protect the debtors' future income after 5 or 10 years from a foreclosure on her main residence: The debtor would be released from any further payment of

¹⁶ Defined by the Article 104 of the Spanish Mortgage Law (*Ley Hipotecaria*).

¹⁷ This expression means that the mortgage lender is not limited to obtain repayment of the amounts due to her over the proceeds of the auction of the mortgaged property, but the lender can pursue other assets of the debtor until full payment is made.

¹⁸ See, Celentani, García-Posada and Gómez, 2012.

¹⁹ This percentage goes down to 50% to assets other than the primary residence of the mortgage debtor.

²⁰ The value is the historical value -based on an external and independent appraisal- set out in the original mortgage deed, not a new valuation made during enforcement proceedings.

the debt secured by the mortgage if the debtor had repaid 65% of it within 5 years (or 80% within 10 years).

Only in 2015²¹, a major reform of personal bankruptcy took place allowing for debt discharge of the mortgage debt that remained outstanding after the end of the mortgage enforcement proceedings, although the benefit of debt discharge (not just over outstanding mortgage debt, but in general) is conditional on the satisfaction of a 5-year payment plan overseen by the bankruptcy court.

2.2. The basic institutional features of the Spanish mortgage system in the relevant period

Mortgage credit²² was in full expansion in Spain in the first years of the century. A housing boom fueled by abundant internal credit to households and firms, and by external credit to Spanish financial institutions (both banks and savings banks) channeled to a significant extent through the securitization of the mortgage loans granted to families and companies in the construction sector. Together with the general contract rules governing mortgage contracts and civil procedure rules on mortgage enforcement, there were some specific laws and regulations dealing with the mortgage market.

On the one hand, there was the Mortgage Market Law of 1981 (extensively modified in 2007, on the eve of the collapse of the real estate market) containing certain precautionary rules on the characteristics of mortgage loans with an eye on the secondary market. For instance, most mortgages that were intended for later securitization were subject to a maximum Loan-To-Value ratio of 80%.²³ However, during the housing boom there was evidence of inflated house appraisals in order to facilitate increased leverage on mortgage loans.²⁴ The Mortgage Market Law was amended in 2007 to introduce stricter rules to secure independence of appraisal companies from mortgage creditors. On the other, there was extensive (although arguably not too strictly enforced) administrative regulation to enhance information provision, transparency and consumer protection in mortgage contracts.²⁵

When the housing and mortgage credit bubble collapsed, the severe worsening of economic and employment magnitudes paved the way to a mass of mortgage foreclosures. These were not short-lived, since the recession in Spain was double-dipped, and in 2011 the general conditions in the Spanish economy following the Euro financial crisis saw a perceptible decline. Since the outbreak of the financial crisis, however, the major concern of the Spanish Government was the stability

²¹ Royal Decree Law 1/2015 of 27 February 2015.

²² A complete coverage of the economic and legal features of the Spanish mortgage market both before and after the financial crisis can be found in Ganuza and Gómez Pomar, 2018.

²³ Mortgage insurance became also increasingly common in Spanish practice to reduce the lender's risk exposure due to the borrower's default.

²⁴ Akin et al., 2014.

²⁵ A portion of these regulations were amended after the financial crisis, and now they have been superseded almost entirely by the Law 5/2019, of 15 March 2019, implementing into Spanish Law the European Directive 2014/17, of 4 February 2014, on residential mortgage credit. These later developments, however, take place in periods not included in our sample.

of the banking system and the financial situation of Spain in the EU. For this reason, measures to help families in difficulties due to mortgage payments and foreclosures took a backseat and were carried out belatedly and reluctantly. The political pressure for legal changes mounted, and courts, who were confronted with an unprecedented number of mortgage foreclosures, also started to voice the need for (legislative or judicial) action.

Thus, in 2012 an Act²⁶ was passed with the aim of protecting mortgage loan borrowers who were almost at the level of social and economic exclusion. The Act included a Code of Good Practices for banks in their dealings with disadvantaged mortgage borrowers. The provisions of the Code encouraged the restructuring of the debt²⁷. In particular, it called for a reduction of the interest rate for four years and an increase in repayment terms. If this was not enough for alleviating the pressure faced by debtors a mandatory reduction on the capital²⁸ was foreseen. When neither the restructuring nor the reduction of the capital due were able to reduce the mortgage debt expenditure of the affected family to tolerable limits, the payment in kind by handing over the house to the bank, coupled with a favorable lease contract for the debtor's family for a period of two years was prescribed. Obviously, the position of low-income households (those more likely to default, at least non-strategically) significantly improved in view of the Code's provisions. Although the Code of Good Practices was not mandatory for financial institutions, its voluntary adoption was strongly encouraged by the Spanish banking regulators, and in the end virtually all Spanish banks opted into the Code.

At the same time, Spanish civil courts were knocking at the door of the CJEU, challenging the strict features of the traditional Spanish mortgage foreclosure regime. As we have mentioned in the introductions, many features of Spanish mortgage contract practice and law have been brought before the CJEU. But probably the landmark case, and the most notorious tribute to the relevance of the interactions of Spanish courts with the CJEU is the *Aziz* case.

Aziz was very influential for Spanish Law. It gave rise to various legal reforms in Spain, after the CJEU ruled that the Spanish Civil Procedure Code was not compatible with the level of protection European law grants consumers. In this case, Mr. Aziz concluded a loan contract secured by a mortgage on his family home. One of the contract's clauses stated –in full compliance with Spanish Law at the time- that in the event of a monthly default the bank could bring enforcement proceedings and, for this purpose, the bank may immediately quantify the outstanding amount of the debt by submitting an appropriate certificate with the filing of the lawsuit. Mr. Aziz, shortly after receiving the loan, defaulted on it and the bank instituted enforcement proceedings. This led to a judicial auction of the mortgaged property. Before the court declared that the bank could take possession of the mortgaged property, Mr. Aziz applied to the court for a declaration seeking the annulment of the mentioned clause, on the ground that

²⁶ Royal Decree-Law 6/2012, of March 9, on urgent measures to protect mortgage debtors without resources.

²⁷ Refinancing of existing mortgage debt by taking out a new mortgage is not common in Spanish practice. Adjustable interest rates, pre-payment penalties (these are allowed but within narrow limits), and taxes and administrative expenses on the signature and mandatory registration of mortgages clearly make this alternative not sufficiently attractive in most cases.

²⁸ When neither the restructuring nor the reduction were able to reduce the mortgage effort of the affected family, the in lieu payment of the dwelling and its rental for two years to the same family would occur.

it was an unfair term inserted in a consumer contract. With the clause, also the entire enforcement proceedings should go away.

According to Spanish law at the time, mortgage foreclosure proceedings did not allow for such a claim to be brought before the enforcement court. It had to be made, eventually, in an independent suit that would not halt the foreclosure proceedings. The CJEU finally decided that the relevant Spanish procedural rules impaired the protection intended by Directive 93/13, as the objection to enforcement proceedings on the grounds of existence of unfair terms in the contract was not allowed and no effective protection of the consumer against such terms was deemed to be available.²⁹ The CJEU, although in a more muted manner, raised doubts also about other contract terms³⁰, namely acceleration clauses (based only on one monthly default in the loan) and default interest rates (in the range 12-20%) that prevailed in the Spanish mortgage contract practice -sometimes with explicit legal rules endorsing them, sometimes with the absence of specific regulations to the contrary.

As a result of the *Aziz* decision, several reforms (implemented mainly by virtue of Law 1/2013, of 14th May) had to be rushed by the Spanish Government, affecting both the Spanish Mortgage Act and the Civil Procedure Code, in order to strengthen the consumer's protection in Spanish law in compliance with the requirements set out in the *Aziz* decision. Specifically, the Civil Procedure Code was amended to the effect that the unfairness of a contractual clause was added to the list of possible defenses that a consumer could allege in order to suspend mortgage enforcement proceedings. An appeal as to issues of unfair terms was also added to the picture. It is no surprise that the track record of the Spanish mortgage enforcement system as being notably speedy and effective suffered a blow as a result of the changes brought about by the *Aziz* case.

Less than two years later, personal bankruptcy reform took place. The Royal Decree-Law 1/2015 and then the Law 25/2015 introduced a general regime of debt discharge for individual debtors in bankruptcy. Under this new regime, mortgage foreclosure is not avoided, albeit mortgage debtors may be protected from the remaining debt after the mortgage has been enforced. The data indicate a slight growth in individual insolvency proceedings, although the current levels are far from showing a substantial increase in the number and frequency of individual bankruptcy court cases. The number of personal bankruptcy proceedings remains much lower than in neighboring countries, such as France, Italy, Germany or England and Wales³¹.

We have mentioned other areas of mortgage related litigation. One was the so-called floor clauses. Already in May 2013 the Spanish Supreme Court had considered those clauses to be unfair for reasons of lack of transparency, although the Court refrained from ordering restitution of the amounts that consumers had paid by virtue of the limit to downwards variation of adjustable interest rate. However, when a number of Spanish lower civil courts raised before the CJEU whether the lack of a full restitutionary remedy was compatible with European consumer

²⁹ *Aziz* case, paragraph 64.

³⁰ *Aziz* case, paragraphs 73 and following.

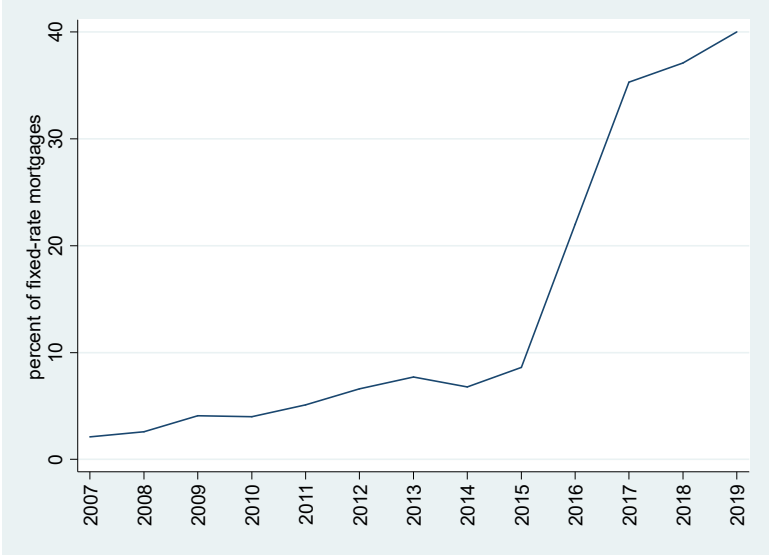
³¹ See, Celentani and Gómez-Pomar, 2020.

protection against unfair terms, the CJEU, in the Gutiérrez Naranjo case of December 2016, sided with complete restitution.

The avalanche of lawsuits pursuing these restitution claims, together with those linked to taxes and expenses associated with the signature and registration of a mortgage contract, urged the Spanish government to design specialized new courts to handle just these kinds of cases. During 2017, 54 courts specialized in unfair contract terms in mortgage contracts were created, with 60 judges allocated to them.

At the same time, some other trends became apparent in the Spanish mortgage market. Among these, the rise of fixed interest rate mortgages. Since the early 1990's Spain was dominated, in terms of mortgage contracts, by adjustable interest rates.³² Many of those contracts included limits (both downwards and upwards) to the variation of adjustable rates. When floor clauses were outlawed by the Spanish Supreme Court, they were naturally abandoned, and in parallel the market experienced an enormous growth in fixed rate mortgages, as illustrated by Figure 1.

Figure 1: Fixed-interest rate mortgages in Spain, 2007-2019



3. A Brief Comparative Contrast

3.1. The US mortgage market

The US mortgage market has been paramount for decades in providing long-term fixed-rate mortgages to families seeking to become homeowners and developing a secondary or securitization

³² As other markets (Australia, Finland, Ireland, Italy, UK), and differently from others (Germany, Netherlands, US). For an international comparison of the use of variable rates in mortgages, Badarinza, Campbell, and Ramadorai, 2016.

market allowing a wide dispersion of the risk in mortgage credit through the financial markets.³³ In the primary mortgage market, a lender typically extends a loan to a borrower who uses the funds to purchase a house. Many different types of lenders, including banks, credit unions, and finance companies make home loans secured by a real estate asset as collateral.

The most common type of mortgage in the United States is the 30-year, fixed-rate, self-amortizing mortgage, in which every payment is the same amount and pays some of the interest and some of the principal until the loan is paid off. Although this is the typical mortgage contract, most mortgages are paid off early. Borrowers pay off a mortgage in various ways other than timely or early repayment (making extra payments). A borrower can refinance the mortgage, taking a new mortgage. In a refinance, the borrower takes out a new mortgage (naturally, on better terms than the initial mortgage, such as with a lower interest rate), using the new mortgage to repay the original mortgage. A borrower can also pay early when selling the home and moving to a different location.

Typically, mortgages do not cover the full amount of the house price, and lenders require a down payment of 20% or more (LTV ratios of 80% or less). Another possibility to reduce the risk for the lender associated with higher LTV is to have mortgage insurance, so that the lender will be covered by the insurance company in case of default by the borrowers. These may purchase mortgage insurance from private insurance companies, but they can get it also from the US federal government. The latter provides explicit support to certain homeowners through government agencies such as the Federal Housing Administration (FHA) and implicit support to others, such as through the government-sponsored enterprises (GSEs) Fannie Mae and Freddie Mac, who acquire mortgage securities issued by the primary market operators in the secondary market.

A mortgage implies that the purchased home is pledged as collateral for the loan. If the borrower is unable or unwilling to pay, the lender can seize the house and sell it to recoup what is owed to her. The process by which a mortgage holder forecloses on a delinquent borrower is governed by state law, so it is subject to very different procedures in the various states. Other aspects of the foreclosure process may depend on the type of mortgage, and FHA insured mortgages require certain loss mitigation steps prior to resorting to a foreclosure process.

Most mortgages in the US are securitized, that is, are pooled into a security with other mortgages, and the payment streams associated with the mortgages are sold to investors. Fannie Mae and Freddie Mac securitize mortgages that conform to their standards. Ginnie Mae, another governmental agency, guarantees mortgage-backed securities (MBS) made up exclusively of mortgages insured or guaranteed by the federal government.

Laws and regulations provide for extensive intrusions in the terms and conditions of mortgage contracts. There are a number of Federal, State, and local anti-predatory lending laws and

³³ For the evolution and description of the US mortgage system prior to the financial crisis, see Green and Wachter (2005), providing also a comparison with other mortgage credit systems in Europe and Asia. For the road to the crisis and its aftermath, Levitin and Wachter (2020).

regulations, implementing and enforcing a number of substantive restrictions on lending terms and practices, including limitations on balloon terms, negative amortization, advance payments, increased interest after default, rebates, prepayment penalties, due-on-demand clauses, loans granted without a proper analysis of the ability to repay³⁴.

Despite these regulatory constraints, the first years of the 21st century saw a large increase in non-traditional mortgage products and expanded access to mortgages for subprime borrowers. These developments have been attributed a large role in the path towards the housing bubble and its burst.³⁵ The responses to the bursting of the bubble were twofold: first, some policy prescription was directly focused at the financial sector; second, a few housing-related programs were enacted so as to dampen the impact of the housing bubble on the collapse of the economy—the federal governmental responses aimed at assisting those facing foreclosure and developing new protections for future homeowners. Several mortgage modifications were passed in 2008, those programs of rapid implementation were mainly addressed to those groups who face worse financial conditions. In essence, they consisted of loan modifications that shift the burden of some of the losses from the borrowers to the owners of the loans. The programs resulted in the reduction of mortgage debt. Kaplan et al., 2017 show that if these programs had been carried out during the bubble years, they would have avoided sharp rises in the number of foreclosures by reducing the negative equity of many households in need. In this regard, Ganong and Noel, 2020, shows that each foreclosure that was avoided supposed an approximate saving of \$ 800,000 of debt.

After the financial crisis, the 2010 Dodd-Frank Act strengthened the regulatory grip on the mortgage system by setting up the Consumer Financial Protection Bureau, a new consumer protection regulator with rulemaking authority over the entire mortgage market and supervision enforcement authority. The Dodd-Frank Act created new substantive regulations as well. One of the most prominent is the prohibition of extending a loan with a residential mortgage without verifying the borrower's ability to repay the loan. Lenders are subject to a duty of making a reasonable and good faith determination based on verified and documented information that, at the time the loan is extended, the consumer has a reasonable ability to repay the loan. The Act contains a safe harbor, in the form of an irrefutable presumption of compliance with the ability-to-repay requirement, when the mortgage contract is deemed a qualified mortgage. This notion is based on certain “standard” features of the mortgage that make it “less risky” for the borrower, and also imposes a maximum Debt-To-Income ratio of 43%.

Dodd-Frank prohibited prepayment penalties on non-qualified mortgages and restricted them for qualified ones. It also mandated independent property appraisals. The Consumer Financial Protection Bureau introduced in 2013 certain rules for the behavior of mortgage servicers in foreclosure. They forbid commencing a foreclosure until a loan is at least 120 days delinquent and mandate early intervention and continuity of contact with borrowers.

³⁴ On these laws and regulations, see Bostic et al., 2008. For the regulatory responses to the housing and mortgage bubble, see Bratton and Levitin, 2020.

³⁵ Mian and Sufi, 2014.

Although there is no overwhelming evidence concerning the precise impact of these new regulations protecting mortgage debtors, there is some consensus that they likely have limited mortgage credit on the margins to riskier borrowers.³⁶

3.2. The German mortgage market ³⁷

From an international perspective, Germany has had a comparatively stable market for real estate in recent decades.³⁸ Even during the financial crisis, and in contrast to other countries (US, Ireland, Italy, Spain), there was no housing and mortgage crisis. At the same time, Germany has one of the lowest rates of homeownership in the developed world, slightly above 40% of the population. This is perhaps evidence that access to credit for purchasing a home is not particularly intense in Germany.

This would not be, however, due to the lack of alternatives, since there are several institutions, in addition to commercial banks, who finance homeownership. One may cite specialised institutions like building savings banks (*Bausparkassen*) and *Pfandbriefbanken* that also provide mortgages. The *Pfandbriefbanken* are important actors in the market for real estate finance (about a third of residential loans). The savings banks, in turn, also cover another third, and cooperative banks around one fifth, with the *Bausparkassen* accounting for a tenth of the market. There seems to be a variety of providers of housing finance, as well as alternative contractual arrangements to implement it, since together with the regular mortgage loan contract, the *Bausparvertrag* allows families to put savings into common accounts that make them able to obtain funds for building their homes more quickly than on individual savings.

The mortgage contracts tend to be fixed-rate, although with lower terms (5, 10 or 15 years) than those prevalent in other markets, such as the US. After the initial fixed term, typically the lender offers an extension with a fixed rate that reflects the current market rate.

There are also strict lending limits imposed on mortgage financiers. They are mandated to appraise house values conservatively and forbidden to account for any speculative increase in value. LTV values are capped at 60%. The Law and case law has forbidden certain terms in mortgage loan contracts, such as the anticipated consent of the consumer to replace the contract partner, the stipulation that full repayment of the residual loan becomes due if borrower does not accept new interest rate determined by lender after the end of the (first) period of fixed interest, the existence of fees payable for managing the credit account, and the imposition of service charges for examining the request for a loan.

The enforcement of the mortgage loan is based on the borrower's default, requires the termination of the loan or the threat of enforcement by public auction plus the expiry of a waiting period of

³⁶ Bratton and Levitin, 2020.

³⁷ For a detailed historical description of the German real estate market see Lehman and Schnabel, 2018.

³⁸ Davies, Turner, Marquardt and Snelling, 2016.

six months. Moreover, the German Civil Code (BGB) sets a certain minimum size for the default for the termination of the loan: the borrower must be completely or partly in default in respect of at least two consecutive instalments and at least 2.5 percent of the nominal amount of the loan (par. 498 and 503 BGB). Moreover, the lender must grant the borrower in default a cure period of at least two weeks, with the explicit statement that in the case of failure to pay within the period, the lender will demand the entire residual debt. At the latest when the lender specifies a period of time, the lender is to offer to the borrower to discuss the possibility of an arrangement by mutual consent.

The mortgage enforcement proceeding is controlled by the court and includes several steps: the appointment of an expert for assessing the value of property and the final determination of the market value by the court; fixing a hearing for public auction and conducting the hearing; court's decision to accept the best offer, and the distribution of receipts to the creditor and, when that is the case, to the debtor. The borrower may challenge the enforcement proceedings by claiming the inexistence or incorrection of the amount claimed by lender, the unenforceability of the mortgage, the mistaken decision as to the value of the property or the inadequacy of the lender offer. The borrower may also raise the issue of intolerable hardship due to extreme circumstances that would make the mortgage enforcement unfair.

4. Data

This section discusses the data used in our empirical analysis of the impact of litigation on mortgage access in Spain. Table 1 reports the key descriptive statistics for our sample of 50 Spanish provinces in the period 2008-2017³⁹. The data were obtained from two different sources: On the one hand, the information related to the functioning of the Administration of Justice, that is, the civil litigation rate and the civil congestion rate were obtained from the database of the General Council of the Judicial Power (*Consejo General del Poder Judicial*). On the other hand, all the variables on socioeconomic characteristics of the different Spanish provinces (i.e. the average age of the population, the number of companies, the GDP volume, etc.) were obtained from different time series provided by the National Institute of Statistics (*Instituto Nacional de Estadística*).

Panel A contains two variables reflecting to some extent the evolution of the Spanish real estate market. In particular, we highlight the total number of mortgages for home purchases, as well as their capitalized value. In panel B we define the explanatory or treatment variable. Specifically, we refer to the evolution of the total number of disputes that enter any of the Spanish courts of civil jurisdiction. The last panel collects information related to different economic variables of the Spanish provinces.

Table 1: Sample descriptive statistics

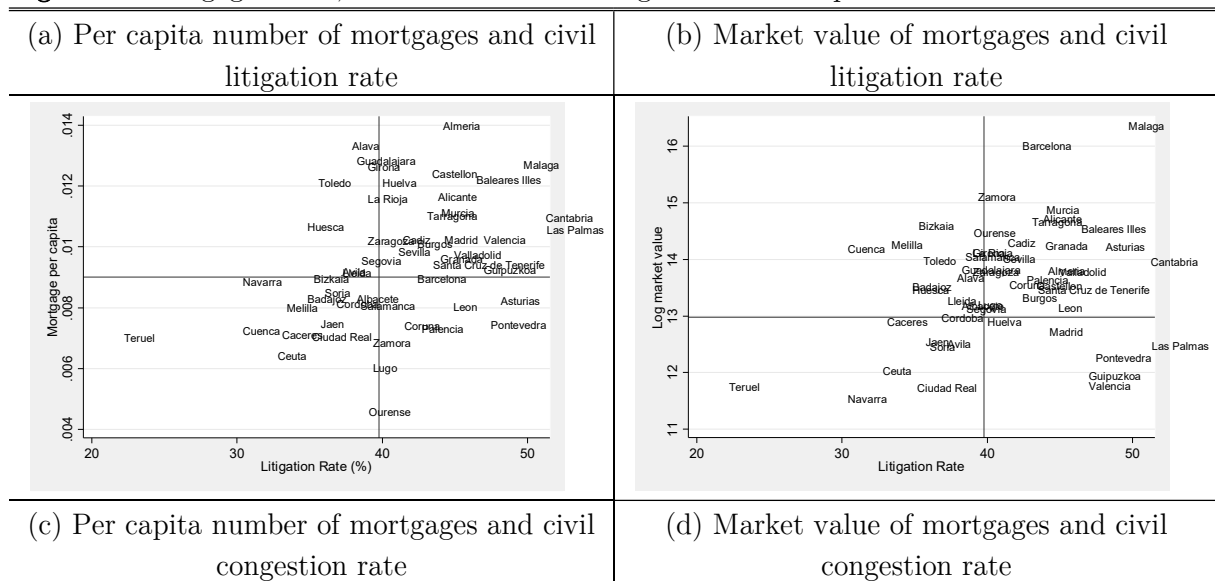
	# obs	Mean	StD	Min	Median	Max
Panel A: Outcomes						
Number of mortgages per 100,000 residents	676	948.80	732.52	206.02 (Ourense)	673.98 (Cordoba)	5477.45 (Almeria)
Mortgage market capitalization (EUR)	676	1103911	2311250	25865 (Caceres)	462834 (Segovia)	2.68E+07 (Malaga)
Panel B: Policy Treatment Variable						
CivilLitigation Rate	676	39.77	7.67	14.86 (Teruel)	39.74 (Girona)	66.23 (Las Palmas)
Panel C: Covariates						
Log GDP volume	572	16.30	0.98	14.12 (Melilla)	16.30 (Valladolid)	19.22 (Madrid)
Log population density	676	4.41	1.31	2.26 (Soria)	4.17 (La Rioja)	8.36 (Ceuta)
Average resident age	676	42.73	3.15	34.51 (Melilla)	42.25 (Girona)	50.68 (Zamora)
Number of firms	676	62912.29	91614.21	3590.00 (Ceuta)	38884.5 (Badajoz)	540544.00 (Madrid)
Log industry GDP share	624	2.44	0.57	-0.22 (Melilla)	2.57 (Huesca)	3.39 (Alava)
Log services GDP share	624	4.14	0.10	3.86 (Huelva)	4.12 (Cadiz)	4.41 (Melilla)

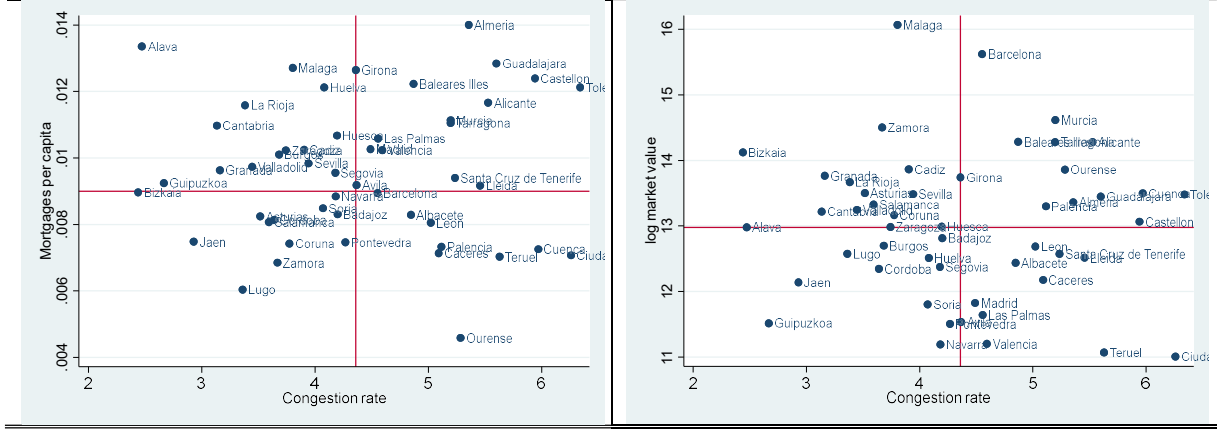
³⁹ The interval of observations excludes the period in which there was a change on the party on which the mortgage tax is levied. The effect of this change is analyzed by Martinez-Miera et al.,2020.

Log agriculture GDP share	624	1.95	0.34	0.47 (Madrid)	1.64 (Tarragona)	2.86 (Huelva)
Log construction GDP share	607	1.55	0.98	-2.30 (Ceuta)	1.91 (Alicante)	3.30 (Toledo)

Figure 2 presents a simple provincial distribution of per capita mortgage availability and overall market value of mortgage compared to the litigation rate for civil cases at the provincial level for the period 2008-2017. Note that the vertical and horizontal lines denote the mean levels of the respective mortgage variable and the litigation rate. Panel (a) depicts the per capita number of mortgages against the litigation rate. A simple cross-provincial comparison reveals four distinctive profiles. The upper left quadrant is characterized by a regime of relatively low litigation rates and high availability of mortgages. Such regime emphasizes a reasonably efficient judiciary and a broad-based mortgage market. Provinces such as Toledo, Huesca and Álava can be found in this particular regime. Second, the lower left quadrant reflects low litigation rates and a relatively non-inclusive mortgage market with a low availability of mortgages in general. Whilst the provincial judiciaries are not likely to be prone to delays, access to mortgage appears to be restricted. Provinces such as Teruel, Cuenca, Jaen and Ciudad Real among several others can be found in this particular quadrant. Third, the lower right quadrant unveils relatively high litigation and low mortgage access and market value. Provinces such as Valencia and Pontevedra can be traced in this cell. And fourth, the upper right quadrant captures a combination of high litigation rates and widespread mortgage access. Most provinces can be found in this particular part of the scatterplot, especially Barcelona, Malaga, Madrid, Murcia and Cantabria to name a few. Panels (c) and (d) add a similar comparison with respect to the civil congestion rate and mortgage market structure, and suggest that similar contrasts between more and less efficient provincial judiciaries can be found with respect to the mortgage access and market value of mortgages.

Figure 2: Mortgage Stock, Market Value and Litigation Across Spanish Provinces





5. Identification Strategy

Does greater litigation reduce the access and market value of mortgages? To explore the relationship between litigation and both the availability and market value of mortgages, we estimate a simple dynamic panel-level model specification of the following form:

$$\ln y_{i,t} = \beta_0 + \sum_{k=1}^K \alpha_k \cdot \ln y_{i,t-k} + \sum_{k=1}^K \lambda_k \cdot L_{i,t-k} + \mathbf{X}'_{it} \phi + \theta_i + \varepsilon_{i,t} \quad (1)$$

where y is either the number of mortgages per capita or the market value of mortgages in province $i = 1, 2, \dots, N$ across $t = 2008, \dots, 2017$ years. Our key explanatory variable of interest is L which denotes the litigation rate. To address the endogeneity of litigation with respect to mortgage credit availability and size, we compose a dynamic litigation structure by adding $k = 3$ lags to the contemporaneous litigation rate. This allows us to distinguish between the short-run effect of litigation on mortgage access and the long-run effect. The vector \mathbf{X} comprises the covariates that systematically shape the mortgage supply at the provincial level such as GDP per capita, population density, average age of residents, firm density, and sectoral composition of the GDP. The term θ_i captures province-fixed effects which may exhibit non-zero correlation with covariates, and ε is the random error term. Given that the litigation rate is likely correlated with the province-fixed effects, we apply first-difference transformation to remove the unobserved component and use instruments to form the necessary moment conditions (Holtz-Eakin et. al., 1988, Arellano and Bond, 1991).

A dynamic mortgage market specification in Eq. (1) allows to parse out the overall effect of litigation on mortgage access and market capitalization, and break it down into the contemporaneous (i.e. short-run) effect and the long-run effect. Since the endogeneity of the mortgage market is both persistent and time-contingent, we expect that the coefficients on lagged litigation rate are statistically significantly different from zero. Given the relatively small length of our panel, we rely on the dynamic panel-level specification to estimate the effect of increasing litigation rates on the mortgage access and the value of the mortgage market. One potential

backdrop against the use and application of the dynamic panel-level model is that the direction of causality can neither be postulated nor tested. Even though for such purposes, panel-level vector-autoregression model (PVAR) might yield a more meaningful result, our key limitation in the small size of the panel which might suffer from low statistical power and rotational variance issues that could increase the noise-to-signal ratio and render our estimates questionable for the most part. To this end, several advantages arise from the dynamic panel estimator that we propose to study the effect of litigation on mortgage market in Eq. (1). First, the unobserved province-level effects are both temporally correlated with the lagged values of the outcome, which implies that not removing the unobserved component, in contrast to Helmert-style transformation in PVAR models, improves the consistency and reliability of our estimates. Second, in the presence on unobserved spatial (i.e. provincial) heterogeneity, dynamic panel specification provides us the flexibility in the ability to control for the time-varying litigation technology shocks that are common to all provinces. In turn, this allows us to extract the time-varying component from the residual estimate that could otherwise confound the effect of litigation with the set of omitted variables that is perceivable across all provinces. And third, using dynamic panel-level approach, we are able to impose the set of restrictions on the inference about the effect of litigation on mortgage market access and capitalization. By imposing Wald restrictions, we are able to see if the short-run effect of litigation prevails over the long-run effect or vice versa, and whether the effect either persists or disappears over time.

6. Results

6.1 Baseline estimates

Table 2 presents the estimated effect of litigation rate on mortgage access. Columns (1) and (2) exhibit the effect of litigation on the access to mortgages. To capture the mortgage access, we compute the number of mortgages per 100,000 inhabitants at the province level. To distinguish between the temporal dimension of the effects, we consider the short-run effect of litigation and the effect of litigation after three years since this is the maximum length that we can consider in our data. In the presence of full set of covariates, column (1) shows that an increase in contemporaneous litigation rate is associated with 0.6 percent increase in the mortgage access, which appears to be statistically significant at 1%. Notice that the second and third lag of the litigation rate is both quantitatively large and statistically significant at 1%. Using a simple Wald linear restriction, we compute the effect of rising litigation rate on mortgage access after three years. The evidence unequivocally suggests that 1 percentage point increase in the civil litigation rate leads to 1.7 percent drop in the number of mortgages per 100,000 residents. The effect is robust to several specification checks and does not seem to be attributed to the province-level heterogeneity bias that cannot be observed by the econometrician.

One potential backdrop against the full-sample estimate in column (1) is that the effect could be driven by large-population provinces with a sizeable mortgage market. To this end, columns (2)

splits Madrid and Barcelona off the full sample as two potential sets of high-leverage observations. In quantitative terms, both the size and significance of the litigation effect remain intact. In column (3), we estimate the effect of litigation rate on the market value of mortgages at the province level. Consistent with our prior specifications, we find evidence of the positive and significant effect of litigation in the short run which becomes negative and significant after three years. That is, one percentage point increase in the litigation rate is associated with 0.7 percent increase in the province-level market value of the mortgages. After three years, 1 percentage point increase in the litigation rate tends to depress the market value of mortgages by 1.4 percent, respectively. In column (4), the exclusion of Madrid and Barcelona from the full sample does not seem to affect the magnitude and significance of the estimates in a non-trivial way.

Table 2: Effect of Litigation on Access to Mortgages in Spain, 2008-2017

Outcome:	Mortgage Access		Market Value	
	(1)	(2)	(3)	(4)
	Full Sample	w/o Madrid and Barcelona	Full Sample	w/o Madrid and Barcelona
Litigation Rate	.006*** (.002)	.006*** (.002)	.007*** (.002)	.007*** (.002)
Litigation Rate (t-1)	-.0004 (.0021)	-.00005 (.002)	.001 (.003)	.0004** (.002)
Litigation Rate (t-2)	-.007*** (.002)	-.008*** (.002)	-.010*** (.002)	-.008*** (.002)
Litigation Rate (t-3)	-.015*** (.002)	-.015*** (.002)	-.013*** (.003)	-.013*** (.003)
Effect of Litigation After 3 Years - Wald Linear Restriction (p-value)	-0.017*** (.005)	-0.017*** (.005)	-0.014*** (.006)	-0.014** (.006)
Covariates	Yes	Yes	Yes	Yes
Province-Fixed Effects	Yes	Yes	Yes	Yes
Wald Chi Squared Test (p-value)	0.000	0.000	0.000	0.000
# instruments	55	55	55	55
# observations	352	338	352	338

Notes: the dependent variable is the per capita number of mortgages in columns (1) and (2), and the natural log of the market value of mortgages in columns (3) and (4). Standard errors are adjusted for serially correlated stochastic disturbances across and within provinces using finite-sample empirical distribution function to adjust for the non-zero spatial and temporal covariance of the random error term. Robust standard errors are denoted in the parentheses. Asterisks denote statistically significant coefficients at 10% (*), 5% (**), and 1% (***), respectively.

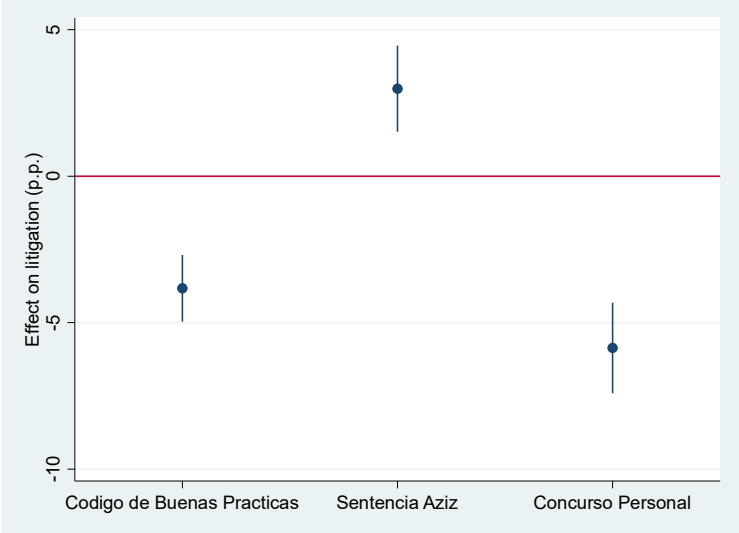
Given a large and sizeable impact of litigation on mortgage access, the obvious question to ask is which policy channels and legislative changes possibly drive the negative long-run effect of litigation on mortgage access.

To this end, we explore three different channels: (i) Code of Good Banking Practices with respect to mortgage loans to low-income debtors and protection of the most vulnerable debtors that was implemented in 2012, (ii) judgement of the CJEU in the case Mohamed Aziz vs. Catalunya Caixa in 2013 on unfair terms in mortgage loan agreement and enforcement proceedings, and (iii) legislative changes in personal bankruptcy law in 2015 that affected credit contracts in general. To tackle the impact of the legislative changes and Aziz court case, we construct simple post-

treatment variables for each change and re-estimate a dynamic litigation model similar to one laid out in Equation (1) using the litigation rate as a dependent variable whilst using three lags and retaining the same set of covariates as control variable to address the omitted variable bias and the endogeneity of litigation.

Figure 3 presents the overall effect of the two aforementioned legislative policy changes and the Aziz court case on the litigation rate across Spanish provinces. Each coefficient represents an average change in the litigation rate in the post-policy period once structural confounding variables and past litigation dynamics are controlled for, which is consistent with the standard approach in the empirical institutional analyses (Acemoglu et. al. 2019). To compute the long-run effect of these policy changes, we adjust the coefficient from the extant dynamic structural equation for the three lags of the litigation variable using non-linear Wald ratio. Our evidence indicates reasonable strong influence of these policy channels on the litigation rates both across and within Spanish provinces. In particular, the litigation rate appears to have decreased by 3.98 percentage points in response to the code of good banking practices. Since a portion of the effect may be driven by the past litigation dynamics, this corresponds to 3.5 percentage points permanent drop in litigation rate in time period. By contrast, the Aziz court sentence on unfair terms seems to have led to an increase in the litigation rate of about 2.9 percentage points, ceteris paribus. By contrast, the changes in personal bankruptcy law are associated with 5.8 percentage point drop in the litigation rate. Our evidence corroborates the notion of the adverse effect of litigation on the accessibility of mortgages whilst also unveiling some legal policy shifts after 2012, especially the adoption of good banking practices and modification of personal bankruptcy code that have deterred some of the litigation that could further restrain the access to mortgages.

Figure 3: Effect of Legislative Policy Changes on Litigation

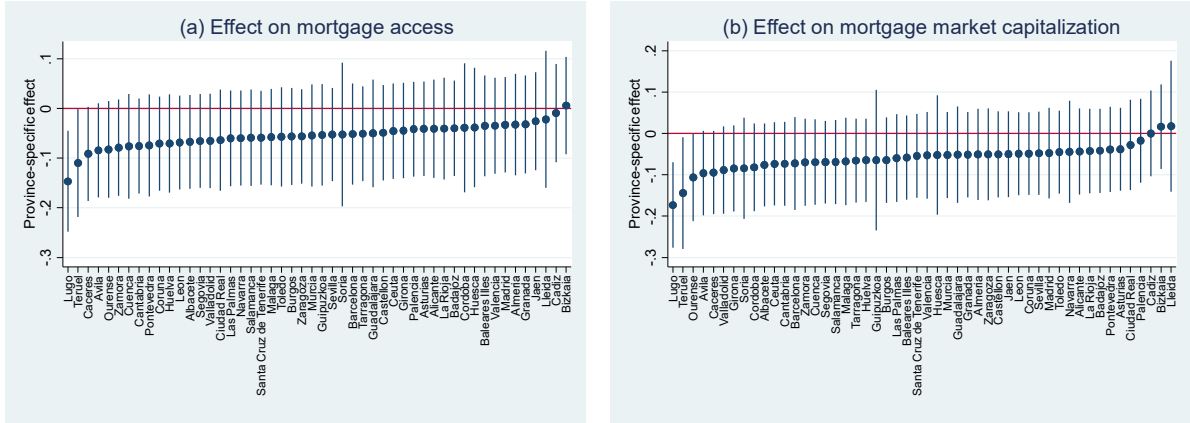


6.2 Spatial Heterogeneity

Notwithstanding the differences in the litigation rate across Spanish provinces, perhaps one of the most pressing questions that arises from the baseline results is whether some provinces are differentially affected by the litigation rate. That said, do both mortgage access and the capitalization of the mortgage market react differently to the rising litigation rate across provinces? Such questions are important to further grasp the effects of the demand for litigation on access to mortgage credit, which so far indicate a pervasive and significant drop in the access in response to rising litigation rates. We address the potential spatial dissimilarities in the effect of litigation on mortgage access, by expanding our baseline dynamic panel-level specification with the set of province-specific interaction effects. That is, we construct an interaction term between the impact-based contemporaneous litigation variable and the three lags, and interact the long-run effect with the full set of province-specific indicator variables through the Wald-based linear restriction. By estimating the augmented specification, we are able to parse out the province-specific reaction of the mortgage market to the rising litigation rate. Albeit imperfectly, we are able to partially unravel the heterogeneity of the baseline effect that arises from province-specific differences in the demand for litigation and judicial efficacy.

Figure 4 exhibits the province-specific effect of litigation on the mortgage market. Panel (a) lays out the province-level differences in the effect of litigation on mortgage access. The evidence indicates marked and non-trivial differences in the magnitude of the effect across the provinces. With the exception of two provinces (i.e. Bizkaia and Cadiz), the effect of the rising litigation rate on per capita mortgage is negative and reasonably large and in the bound of the -0.1 log point for each percentage point increase in the litigation rate, which roughly translates into the drop in the availability of mortgages of about 10 percent, respectively. In some provinces such as Lugo and Teruel, the reaction of the mortgage access to the rising litigation rate is particularly large and outside the 10 percent bound. In Panel (b), the differences in the effect of litigation on the capitalization of the mortgage market are considerably more pronounced. Consistent with the baseline results, the effect of the rising litigation rate on the capitalization is negative and somewhat larger than the effect on access to mortgage credit. With the exception of a handful of provinces (i.e. Lleida, Bizkaia and Cadiz), where the effect does not seem to be discernable from zero, the effect of increasing litigation rate appears to be negative elsewhere. The peripheral provinces such as Teruel, Lugo, Ourense, Avila and Caceres tend to be most adversely affected by the increasing demand for litigation. For other provinces, the negative effect of the litigation rate on mortgage market capitalization appears to be negative and fairly uniform with no marked spatial differences.

Figure 4: Province-Specific Effect of Litigation on Mortgage Market



6.3 The Choice of Litigation Measure

The evidence so far is indicative of a pervasive and negative impact of the rising litigation rates on mortgage access and mortgage market capitalization. Using civil litigation rates as proxies for the overall litigation, we are able to estimate the impact of the demand for litigation on the mortgage market. That question that remains is whether the drop in mortgage access is driven by the ability of civil courts to resolve disputes in a reasonable manner rather than by the demand for litigation itself. To address these concerns, we replace the civil litigation rate as the underlying treatment variable with the province-level congestion rate of courts in the civil jurisdiction.⁴⁰ This allows us to capture the effects of the judicial efficacy on the mortgage market, and determine whether the judicial efficacy effect is consistent with the effect of litigation.

Table 3 reports the effect of the congestion rate on the mortgage market across Spanish provinces for the period 2008-2017. Columns (1) and (2) report the effect of increasing congestion rates on the mortgage market. The evidence indicates a very similar pattern in the effects of congestion rate to the baseline estimates. In particular, the effect of growing congestion rates on access to mortgage is weak in the short run whilst it becomes sizeable, negative and significant in the long run. The point estimates in the full-sample specification in column (1) indicate no contemporaneous effect of higher congestion rate on the access to mortgages. The coefficient on the first lag of the congestion rate is negative but insignificant whilst the coefficient on the second lag of the congestion rate is negative and statistically significant at 5%. The magnitude of the coefficient on the second lag is almost as large as the sum of the contemporaneous coefficient and the first lag combined.⁴¹ By imposing the Wald linear restriction, we compute the effect of increasing congestion rate on mortgage access after for the full finite time horizon (i.e. after 2 years). After two years, a higher congestion rate translates into 3.2 percent drop in the number

⁴⁰ Congestion rate is defined as the ratio of the sum of pending cases plus the new cases measured in the specific year divided by the number of resolved cases in the same year. A lower congestion rate is indicative of greater judicial efficacy in solving civil disputes. See Garcia-Posada and Mora-Sanguinetti, 2015; Ponticelli and Alencar, 2016; Mora-Sanguinetti and Spruk, 2018, for further discussion.

⁴¹ Notice that two lags are used instead of three lags compared to the baseline setup. The choice of lags is not arbitrary and is determined by the Wooldridge, 2002) test for serial correlation in the linear panel data models. See Drukker, 2003, for further discussion.

of mortgages per 100,000 inhabitants although the effect does not appear to be statistically significant (i.e. p-value = 0.23). In column (2), Madrid and Barcelona are excluded from the full sample, to check for the influence of high-leverage observations that drive the patterns of the mortgage access. The underlying pattern of the lags is similar to the one in full-sample specification in Eq. (1). The coefficient on the second lag of the congestion rate increases from -0.029 to -0.031, and is also statistically significant at 5%. This implies that without high-leverage provinces where a large portion of the mortgage stock is concentrated, the effect of increasing congestion rate on mortgage access is even higher. Yet, after two years, higher congestion rate does not translate into a significant drop in mortgage access (i.e. p-value = 0.22). Notice that the effect is unlikely to be driven or confounded by the mortgage access covariates and province-fixed effects as both are included in each respective model specification.

Columns (3) and (4) report the effect of congestion rate on mortgage market capitalization. Compared to mortgage access specifications, we find evidence of significantly negative impact of the judicial efficacy on the mortgage market. Point estimates in the full-sample specification in column (3) indicate no contemporaneous impact of higher congestion rates on mortgage market capitalization. After one year, the effect becomes negative but insignificant whilst after two years, the effect becomes large and statistically significant. Pointwise, one percentage point higher congestion rate translates into 6.5 percent drop in the mortgage market capitalization relative to the counterfactual scenario. A simple Wald restriction of the distributed lags is statistically significant at 5%, respectively, which implies that greater judicial inefficacy might have an adverse impact of the mortgage market capitalization. In column (4), splitting Madrid and Barcelona off the full sample does not seem to render the estimated impact of congestion rate questionable.

Table 3: Effect of Congestion Rate on Access to Mortgages in Spain, 2008-2017

Outcome:	Mortgage Access		Market Capitalization	
	(1)	(2)	(3)	(4)
	Full Sample	w/o Madrid and Barcelona	Full Sample	w/o Madrid and Barcelona
Congestion Rate	.014 (.013)	.012 (.013)	-.008 (.019)	-.012 (.019)
Congestion Rate (t-1)	-.017 (.014)	-.014 (.014)	-.010 (.015)	-.006 (.015)
Congestion Rate (t-2)	-.029** (.014)	-.031** (.014)	-.046*** (.015)	-.045*** (.015)
Effect of Congestion After 2 Years - Wald Linear Restriction (p-value)	-.032 (.027) P=.23	-.033 (.026) P=.22	-.065** (.033) P=.05	-.065*** (.032) P=0.04
Covariates	Yes	Yes	Yes	Yes
Province-Fixed Effects	Yes	Yes	Yes	Yes
Wald Chi Squared Test (p-value)	0.000	0.000	0.000	0.000
# instruments	56	56	56	55
# observations	400	384	400	384

Notes: the dependent variable is the per capita number of mortgages in columns (1) and (2), and the natural log of the market value of mortgages in columns (3) and (4). Standard errors are adjusted for serially correlated stochastic disturbances across and

within provinces using finite-sample empirical distribution function to adjust for the non-zero spatial and temporal covariance of the random error term. Robust standard errors are denoted in the parentheses. Asterisks denote statistically significant coefficients at 10% (*), 5% (**), and 1% (***), respectively.

The point estimate in column (4) suggests that after two years, one percentage point increase in the civil congestion rate is associated with 6.5 percent drop in the province-level mortgage market capitalization, indicating a reasonably strong and dampening effect of judicial inefficacy on mortgage credit (i.e. p -value = 0.04). The underlying effect does not appear to be tainted or tarnished by the confounding influence of covariates such as demographic structure, level of income, or province-level economic specialization and is robust to province-fixed effects. Considering the role of legislative changes in the shaping of congestion rate, we estimate the impact of some of the key policy channels in the nexus between judicial efficacy and the two mortgage market outcomes similar to Figure 2 to better understand the extant impact and efficacy of these changes in combating the pervasiveness of litigation and its adversity with respect to the mortgage market.

Figure 5 presents the impact of the three key policy changes respective of the Spanish mortgage market on the province-level congestion rate. The evidence on the impact of these changes highlights three distinctive features. First, the adoption of the code of good banking practices (i.e. *Código de Buenas Prácticas*) is associated with a marked and discernible reduction in the congestion rate. In particular, our estimates uncover about 1 percentage point drop in the congestion rate in response to the code of good banking practices, which is consistent with the notion emphasizing the beneficial impact of good practices that appear to be effective in reducing the judicial backlog. Second, our estimates indicate a modest drop in the congestion rate in response to the Aziz sentence. The drop is likely to respond to greater province-level judicial efficacy. The root cause for this enhanced expediency probably lies in the fact that the mortgage-related cases that are arriving in large numbers now are very similar to one another, and courts are able to solve them more speedily and with a smaller investment of time and court resources. Due to a number of factors, Spanish civil procedure rules did not allow efficient initial aggregation of similar cases (in consumer law and in other areas) in collective lawsuits.⁴² At the same time, judicial performance incentives in place for the Spanish judiciary discouraged judges from making efforts to aggregate similar cases and solve them with a single decision.⁴³

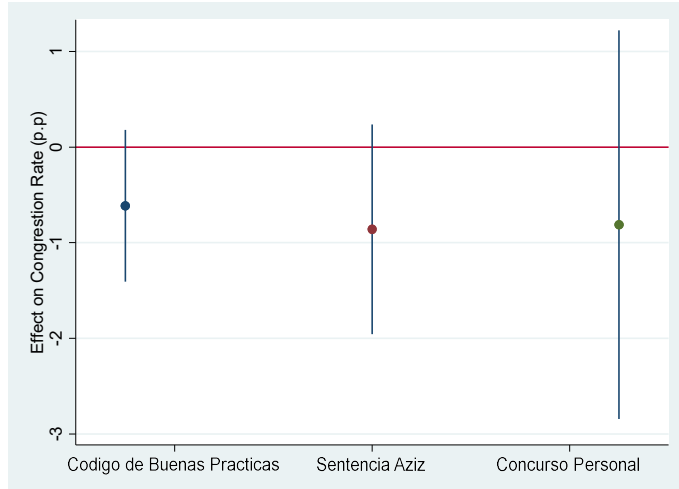
Pointwise, our estimates indicate a drop in the congestion rate of about 1 percentage point that is potentially attributed to the Aziz sentence which might have reduced the judicial backlog arises from new incoming cases, substantially. The point estimate is statistically significant at 5%, which implies that it is unlikely that the policy impact is an empirical artefact. Conversely, our estimates do not indicate a marked change in the congestion rate in response to the fundamental changes in the personal bankruptcy code. Although the estimated impact is

⁴² See, for mortgage-related litigation, Gómez-Pomar, Ganuza and Artigot, 2018.

⁴³ Doménech, 2008.

negative, it is at the same time characterized by wide confidence bounds, that render the effect statistically insignificant.

Figure 5: Effect of Legislative Policy Changes on Congestion Rate



On balance, our evidence advocates adverse effects of litigation and judicial efficacy on the mortgage market. We highlight two distinctive effects. First, the provinces with higher rates of civil litigation tend to have considerably constrained access to the mortgage market. This implies that increasing litigation translates into the reduced supply of new mortgages. The negative effect of litigation on mortgage access does not seem to be driven by differences in demographic structure, comparative advantages, and levels of per capita income. Second, higher litigation rate also has an adverse effect on the market capitalization of the mortgages, which has well-known economic implications established in the extant literature. In quantitative terms, we show that increasing the litigation rate by one percentage point tends to reduce the overall capitalization of mortgages by about 1.2 percent, respectively. Using judicial congestion rates as the treatment variable of interest further allows us to tackle the relationship between judicial efficacy and availability of mortgages. Consistent with the baseline results, we find that a higher rate of congestion translates into a marked but insignificant reduction in mortgage access whereas the effect on mortgage market capitalization is large, negative and pervasive and does not seem to be driven by high-leverage observations.

6.4 *Confounding influence of preferential mortgage tax regime*

An additional caveat arises from the concern about the confounding impact of litigation on mortgage market structure. The evidence so far indicates adverse effects of rising litigation rate on access to mortgages and their respective market values. However, the full sample of provinces also comprises three provinces in the Basque Country which are known for favorable tax treatment for mortgage loans financing the acquisition of a primary residence of the borrower. In Spain, mortgages are subject to administrative tax which has to be paid upon the formalized mortgage. The tax is administered by the autonomous communities (i.e. first-level administrative

division level) is ranges from 0.5% to 1.5% of the mortgage liability (mortgage liability is typically 20% more than the amount of the loan). Contrary to the rest of Spain, residential loans secured over the main home of the borrower in the Basque Country are exempt from the tax for a variety of historical reasons. This implies that the mortgage tax regime in the Basque provinces contrasts markedly from the rest of Spain. Given a relatively high density of mortgage access and market value in Basque provinces, full-sample fixed-effects estimates may pose a source of upward biased effect of litigation on the mortgage market.

To address these concerns, Table 4 reconsiders the baseline estimates by splitting the Basque provinces (i.e. Álava, Bizkaia, Guipuzcoa) from the full sample and assessing them against the baseline. The evidence readily suggests a striking similarity of the split-sample fixed-effects estimates to the baseline effects. In particular, the effect of rising litigation rates on mortgage access remains intact both in terms of significance and magnitude after three years of the increase as demonstrated in columns (1) and (2). Columns (3) and (4) assess the impact of litigation on mortgage market capitalization and find similarly negative effect of higher litigation rate on mortgage market value. By splitting the Basque provinces off the full sample, the effect of litigation after three years drops from -1.4 percent to -1.2 percent, and is statistically significant at 5%. This implies that the preferential mortgage tax regime does not taint the full-sample effect in a discernible way. However, a drop in the magnitude of the effect implies that about 14 percent (=0.2 percentage points/1.4 percent) of the baseline litigation effect is attributed to the preferential mortgage tax regimes that is unique to the Basque provinces and distinctive from the rest of Spain.⁴⁴

Table 4: Preferential Mortgage Tax Regime and Estimate Sensitivity Analysis

Outcome:	Mortgage Access		Market Value	
	(1)	(2)	(3)	(4)
	Full Sample	w/o Basque Country	Full Sample	w/o Basque Country
Litigation Rate	.006*** (.002)	.005*** (.002)	.007*** (.002)	.006** (.002)
Litigation Rate (t-1)	-.0004 (.0021)	.0007 (.002)	.001 (.003)	.003 (.003)
Litigation Rate (t-2)	-.007*** (.002)	-.007*** (.002)	-.010*** (.002)	-.008*** (.002)
Litigation Rate (t-3)	-.015*** (.002)	-.016*** (.002)	-.013*** (.003)	-.013*** (.003)
Effect of Litigation After 3 Years - Wald Linear Restriction (p-value)	-0.017*** (.005)	-0.017*** (.004)	-0.014*** (.006)	-0.012** (.006)
Covariates	Yes	Yes	Yes	Yes
Province-Fixed Effects	Yes	Yes	Yes	Yes
Wald Chi Squared Test (p-value)	0.000	0.000	0.000	0.000
# instruments	55	55	55	55
# observations	352	331	352	331

⁴⁴ We reach quantitatively similar results when the litigation rate is replaced by the congestion rate.

Notes: the dependent variable is the per capita number of mortgages in columns (1) and (2), and the natural log of the market value of mortgages in columns (3) and (4). Standard errors are adjusted for serially correlated stochastic disturbances across and within provinces using finite-sample empirical distribution function to adjust for the non-zero spatial and temporal covariance of the random error term. Robust standard errors are denoted in the parentheses. Asterisks denote statistically significant coefficients at 10% (*), 5% (**), and 1% (***), respectively.

6.5 Robustness to Local Economic Conditions

Lastly, we assess the robustness of the litigation effect on mortgage market with respect to the choice of variable proxying local economic conditions. The specifications tested and carried out so far use province-level per capita GDP and may neglect the importance of unemployment as a labor market shock for both mortgage access and market values. Notwithstanding the influence of unemployment for mortgage demand, large differences in unemployment rate are perceivable across Spain, and range from 9.7 percent in Guipúzcoa in Basque Country to 30.6 percent in Cádiz in Andalucía. Table 5 reports the effects of litigation on the mortgage market by controlling for the confounding influence of unemployment. The evidence suggests that a higher litigation rate is associated with consistently lower mortgage access and market value. Column (1) reports full-sample specification where the estimates emphasize about 1 percent drop in mortgage access in response to 1 percentage point increase in litigation rate, which appears to be consistent with the prior evidence. Moreover, column (3) reports the equivalent specification of the mortgage market using the market value of mortgages as a dependent variable. The estimates imply that 1 percentage point increase in litigation rate tends to decrease the market value of mortgages by 1.3 percent, respectively. This appears to be quantitatively large and statistically significant at 1%. The negative effect of rising litigation rates on the mortgage market is strong given a large negative effect of unemployment on mortgage market access, which confirms our prior estimates and theoretical expectations.⁴⁵

Table 5: Effect of Litigation on Access to Mortgages in Spain, 2008-2017

Outcome:	Mortgage Access		Market Value	
	(1)	(2)	(3)	(4)
	Full Sample	w/o Madrid and Barcelona	Full Sample	w/o Madrid and Barcelona
Litigation Rate	.004** (.001)	.004** (.001)	.004* (.002)	.004* (.002)
Litigation Rate (t-1)	.002* (.001)	.003** (.001)	.001 (.002)	.001 (.002)
Litigation Rate (t-2)	-.007*** (.001)	-.007*** (.001)	-.010*** (.002)	-.009*** (.002)
Litigation Rate (t-3)	-.008*** (.001)	-.008*** (.001)	-.010*** (.002)	-.009*** (.002)
Unemployment Rate	-.046*** (.005)	-.045*** (.005)	-.052*** (.008)	-.049*** (.008)
Effect of Litigation After 3 Years - Wald Linear Restriction (p-value)	-0.008** (.003)	-0.007** (.003)	-0.014*** (.004)	-0.013*** (.004)
Covariates	Yes	Yes	Yes	Yes

⁴⁵ We reach quantitatively very similar results when litigation rate is replaced by congestion rate across dynamic province-level specifications.

Province-Fixed Effects	Yes	Yes	Yes	Yes
Wald Chi Squared Test (p-value)	0.000	0.000	0.000	0.000
# instruments	55	55	55	55
# observations	352	338	352	338

Notes: the dependent variable is the per capita number of mortgages in columns (1) and (2), and the natural log of the market value of mortgages in columns (3) and (4). Standard errors are adjusted for serially correlated stochastic disturbances across and within provinces using finite-sample empirical distribution function to adjust for the non-zero spatial and temporal covariance of the random error term. Robust standard errors are denoted in the parentheses. Asterisks denote statistically significant coefficients at 10% (*), 5% (**), and 1% (***), respectively.

7. Conclusion

In this paper, we examine the contribution of litigation to mortgage access. To this end, we estimate the impact of the civil litigation and congestion rates on the access to mortgages and the capitalized market value for a sample of 50 Spanish provinces for the period 2008-2016. Our identification strategy exploits within-province variation in the litigation rate as a source of variation in the mortgage access whilst controlling for the confounding effects of provincial economic conditions, demographic structure, and income per capita. We show that a higher litigation rate tends to restrict the access to mortgages considerably. Based on our preferred specification exploiting mortgage market dynamics, we show that one percentage point increase in the litigation rate tends to reduce per capita mortgage availability by 1.7 percent, respectively. The estimated impact of increased litigation rate on the mortgage market capitalization reveals an estimated magnitude of around 1.4 percent drop in the capitalization in response to one percentage point increase in the litigation rate. Taken together, our evidence indicates potentially non-trivial and discernible adverse effects of greater demand for litigation on mortgage access.

Moreover, by looking into some of the policy transmission channels, we show that some policy changes restrained the demand for litigation while others encouraged it. Our estimates show a considerable drop in the litigation rate after the implementation of the code of good banking practices (which generally encourage banks to refinance or give moratoriums or partial debt discharge to distressed mortgage debtors), as well as an increase in the litigation rate following the famous ECJ court case *Mohamed Aziz v. Caixa* concerning unfair contractual terms and obligations.

By tackling province-specific differences in the estimated effect of litigation, we highlight the spatial heterogeneity in the reaction of mortgage markets to the demand for litigation and show that some provinces are disproportionately affected by the increasing litigation with a considerably larger drop in mortgage market capitalization and mortgage access. Replacing the litigation rate with a more commonly used congestion rate, we are able to capture the effects of judicial efficacy on mortgage market and find that provincial judiciaries with lower case backlogs and delays, tend to induce more broad-based access to mortgages and higher level of mortgage market capitalization. The estimated effects do not seem to be driven by the province-specific unobserved effects and are robust to a variety of control variables related to demographic

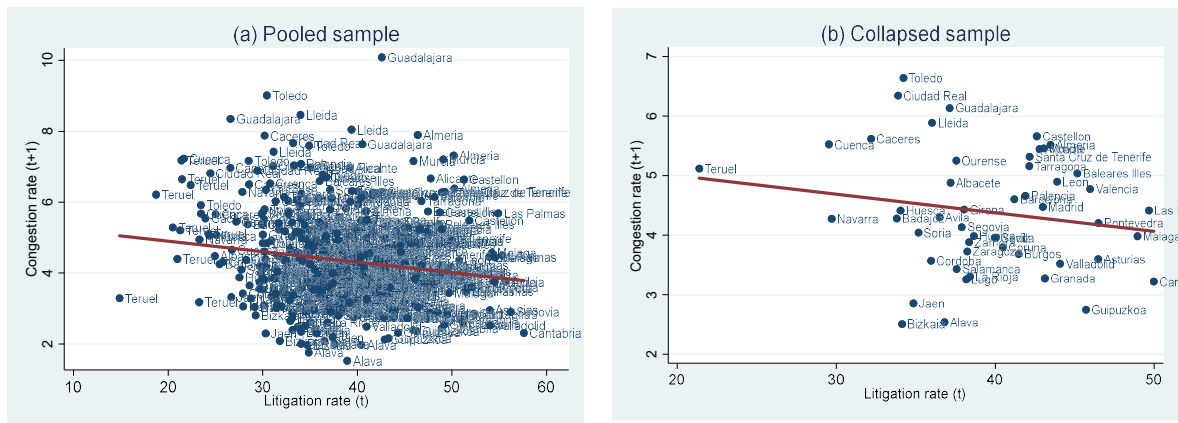
structure, per capita income, and GDP composition that could taint the effect of litigation on mortgage market as omitted variables.

There are a few policy-relevant implications from our results. One is linked to the importance of the functioning of the justice system to the outcomes in the mortgage credit market. The substantive laws and regulations governing mortgage loans and their terms and conditions are surely relevant for the availability of mortgage credit and its composition in terms of the population of borrowers and the financial burdens they face. But credit availability and size is very sensitive to how courts fare in terms of litigation and congestion. When designing legal and regulatory measures for the mortgage market, the state of the justice system, and how the envisaged policies may impact on levels of litigation and court congestion need to be seriously considered. Otherwise, even desirable reforms may well backfire.

A second important policy implications from our estimates is the emergence of a trade-off between contemporaneous litigation rate and subsequent congestion rates. In particular, our analysis highlights a tension between the demand for litigation and the judicial efficacy in solving mortgage-related civil cases. Figure 6 presents the relationship between the litigation rate and the case congestion in the subsequent period which indicates that higher rates of litigation -when comprising similar or identical cases- tends to somewhat reduce congestion rates, thus fostering what looks at increased judicial efficiency in response to the newly arrived cases. When a wave of similar cases arrives to a justice system -and this may happen due to circumstances in the economy that affect a large number of parties, such as a financial crisis or an activity-reducing pandemic, or due to changes in the Law that make lawsuits more appealing, if no effective means to aggregate suits in collective proceedings- we will likely observe surging litigation rates and decreasing congestion rates. The cause for the latter lies in the fact that courts devote very little time and resources to the new cases when they are almost identical: once they learn how to address the first, they are likely to decide the rest in a quasi-mechanical form, thus improving, perhaps significantly, the overall level of efficacy in handling cases.

Thus, the larger litigation rates may appear to be, to some extent, as self-correcting through greater judicial expediency. However, our results show that an increasing rate of litigation tends in itself to dampen both mortgage access and market value of mortgages. We cannot simply trust the internal dynamics of the justice system if we want the legal and justice systems to play a positive role in the provision of credit in the economy.

Figure 6: Case congestion and litigation rate across Spanish provinces



References

- Acemoglu, D., Naidu, S., Restrepo, P., & Robinson, J. A. (2019). Democracy does cause growth. *Journal of Political Economy*, 127(1), 47-100.
- Acolin, A., Bostic, R. An, X, & Wachter, S. M. (2016). Homeownership and the Use of Nontraditional and Subprime Mortgages, *Housing Policy Debate*, Vol. 27, 393-418.
- Akin, O., Montalvo, J. G., Villar, J. G., Peydró, J. L., & Raya, J. M. (2014). The real estate and credit bubble: evidence from Spain. *SERIEs*, 5(2-3), 223-243.
- Arellano, M., & Bond, S. (1991). Some tests of *specification for panel data*: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, 58(2), 277-297.
- Badarinza, C., Campbell, J. Y., & Ramadorai, T. (2016). *International comparative household finance*.
- Bar-Gill, O. (2007). The behavioral economics of consumer contracts. *Minn. L. Rev.*, 92, 749.
- Bardhan, A., Edelstein, R. H., & Kroll, C. A. (2012). The financial crisis and housing markets worldwide: Similarities, differences, and comparisons. *Global housing markets: Crises, policies, and institutions*, 1-20.
- Bakos, Y., Marotta-Wurgler, F., & Trossen, D. R. (2014). Does anyone read the fine print? Consumer attention to standard-form contracts. *The Journal of Legal Studies*, 43(1), 1-35.
- Bostic, R. W., Engel, K., McCoy, P. A., Pennington-Cross, A. N. & Wachter, S. M. (2008). State and Local Anti-Predatory Lending Laws: The Effect of Legal Enforcement Mechanisms. *Journal of Economics and Business*, Vol. 60 (1), 47- 66.

- Bratton, W. & Levitin, A. J. (2020), A Tale of Two Markets: Regulation and Innovation in Post-Crisis Mortgage and Structured Finance Markets, *University of Illinois Law Review*. 47-121.
- Brunnermeier, M. K., & Schnabel, I. (2015). Bubbles and central banks: Historical perspectives.
- Celentani, M., García-Posada, M., & Gómez, F. (2012). The Spanish business bankruptcy puzzle. 2012-2-1[2012-12-18]. http://den-ning.law.ox.ac.uk/news/events_files/GOMEZ_SPAN-ISH_BANKRUPTCY_PUZZLE_.pdf.
- Celentani, M., Ganuza Fernández, J. J., & Gómez Pomar, F. (2018). El régimen legal del crédito hipotecario en España: un análisis económico. In Ganuza Fernández, J. J. and Gómez Pomar, F. (eds.), *Presente y futuro del mercado hipotecario español: un análisis económico y jurídico*. Aranzadi. 35-128
- Celentani, M. & Gómez Pomar, F. (2020). Concursos y preconcursos de personas físicas, autónomos y microempresas: déjà vu all over again. *Indret*: i-x.
- Claessens, S., & Klapper, L. F. (2005). Bankruptcy around the world: explanations of its relative use. *American Law and Economics Review*, 7(1), 253-283.
- D'Apice, V., Fiordelisi, F. & Puopolo, G. W. (2020). Judicial Efficiency and Lending Quality, Working Paper No. 558, Center for Studies in Economics and Finance, University of Naples.
- Davies, B., Turner, E., Marquardt, S., & Snelling, C. (2016). German model homes? A comparison of the UK and German housing markets.
- Davydenko, S. A., & Franks, J. R. (2008). Do bankruptcy codes matter? A study of defaults in France, Germany, and the UK. *The Journal of Finance*, 63(2): 565-608.
- Djankov, Simeon, Oliver Hart, Caralee McLiesh, and Andrei Shleifer. 2006. "Debt enforcement around the world." Cambridge, MA: NBER Working Paper No 12807.
- Djankov, Simeon, Caralee McLiesh, and Andrei Shleifer (2007). "Private credit in 129 countries." *Journal of Financial Economics*, 84(2): 299-329.
- Doménech, G. (2008). La perniciosa influencia de las retribuciones variables de los jueces sobre el sentido de sus decisiones. *Indret*: 1-74.
- Drukker, D. M. (2003). Testing for serial correlation in linear panel-data models. *The Stata Journal*, 3(2): 168-177.
- Foote, C. L., Loewenstein, L., & Willen, P. S. (2016). *Cross-sectional patterns of mortgage debt during the housing boom: evidence and implications* (No. w22985). National Bureau of Economic Research.

García-Posada, M., & Mora-Sanguinetti, J. S. (2012). Why do Spanish firms rarely use the bankruptcy system? The role of the mortgage institution. Banco de España, Documentos de Trabajo N.º 1234: 1-52.

García-Posada, M., & Mora-Sanguinetti, J. S. (2015). Entrepreneurship and enforcement institutions: Disaggregated evidence for Spain. *European Journal of Law and Economics*, 40(1): 49-74.

Ganong, P., & Noel, P. (2020). Liquidity versus Wealth in Household Debt Obligations: Evidence from Housing Policy in the Great Recession. *American Economic Review*, 110(10): 3100-3138.

Gete, P. & Reher, M. (2018). Mortgage Supply and Housing Rents. *The Review of Financial Studies*, Vol. 31 (12), 4884–4911.

Giannetti, M. (2003). Do better institutions mitigate agency problems? Evidence from corporate finance choices. *Journal of financial and quantitative analysis*, 185-212.

Gómez Pomar, F. & Lyczkowska, K. (2017). Spanish Courts, the European Court and Consumer Law: Some Thoughts on Their Interaction. Cafaggi, F. & Law, S. (eds.), *Judicial Cooperation in European Private Law: Edward Elgar*.

Gómez Pomar, F., Ganuza, J. J., & Artigot, M. (2018). Y todos estos pleitos, ¿para qué?. *Indret: 1-8*.

Gómez Pomar, F. & Artigot, M. (2020). ExPost Fairness Controls and Contract Design: The Spanish Experience. Mathis, K. & Tor, A. (eds.), *Consumer Law and Economics: Springer*, 133-150.

Gopalan, R., Mukherjee, A. & Singh, M. (2016). Do debt contract enforcement costs affect financing and asset structure?. *The Review of Financial Studies*, 29, 2774-2813.

Green, R. K. and Wachter, S. M. (2005). The American Mortgage in Historical and International Context. *Journal of Economic Perspectives*, Vol. 19 (4), 93-114.

Gropp, R., Scholz, J. K. & White, M. J. (1997). Personal Bankruptcy and Credit Supply and Demand. *The Quarterly Journal of Economics*, vol. 112(1), 217-251.

Holtz-Eakin, D., Newey, W., & Rosen, H. S. (1988). Estimating vector autoregressions with panel data. *Econometrica*, 56(6), 1371-1395.

Hüfner, F. (2010). The German banking system: lessons from the financial crisis.

- Jappelli, T., Pagano, M. & Bianco, M. (2005). Courts and Banks: Effects of Judicial Enforcement on Credit Markets. *Journal of Money, Credit and Banking*, 37 (2), 223-244.
- Kaplan, G., Mitman, K., & Violante, G. L. (2017). *The housing boom and bust: Model meets evidence* (No. w23694). National Bureau of Economic Research.
- Kalemli-Ozcan, S., Laeven, L., & Moreno, D. (2018). Debt overhang, rollover risk, and corporate investment: Evidence from the european crisis. *National Bureau of Economic Research*, (No. w24555).
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny. 1997. "Legal determinants of external finance." *Journal of Finance*, 52(3): 1131-50.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny. 1998. "Law and finance." *Journal of Political Economy*, 106(6): 1113-55.
- Lehman., & Schanbel, I. (2019). Can Legal Institutions Calm 'Animal Spirits' on the Mortgage Market? Insights from Germany. In Ganuza Fernández, J. J. and Gómez Pomar, F. (eds.), *Law and Economics: A productive relationship*. Funcas. 39-68.
- Levitin, A. J. & Wachter, S. M. (2020). *The Housing Bubble*: Harvard University Press.
- Li, W., White, M. J. & Zhu, N. (2011). Did Bankruptcy Reform Cause Mortgage Defaults to Rise?. *American Economic Journal: Economic Policy*, Vol. 3 (4), 123-147.
- Li, W., Tewari, I. & White, M. J. (2019). Using Bankruptcy to Reduce Foreclosures: Does Strip-Down of Mortgages Affect the Mortgage Market?. *Journal of Financial Services Research*, vol. 55(1), 59-87.
- Martinez-Miera, David and Jimenez, Gabriel and Peydró, Jose-Luis, Who Truly Bears (Bank) Taxes? Evidence from Only Shifting Statutory Incidence (December 1, 2020). LawFin Working Paper No. 12, Available at SSRN: <https://ssrn.com/abstract=3745519> or <http://dx.doi.org/10.2139/ssrn.3745519>.
- Mian, A. & Sufi, A. (2014). *House of Debt*: University of Chicago Press.
- Mora-Sanguinetti, J. S., Martínez-Matute, M. & García-Posada, M. (2017). Credit crisis and contract enforcement: evidence from the Spanish loan market. *European Journal of Law and Economics*, 44 (2), 361-383.

Mora-Sanguinetti, J. S., & Spruk, R. (2018). Industry vs services: do enforcement institutions matter for specialization patterns? Disaggregated evidence from Spain. Documento de Trabajo No. 1812, Bank of Spain.

Mora-Sanguinetti, J. S. (2020). La litigación: externalidades e instrumentos para su racionalización. El caso español. *Información Comercial Española*, N. 915, 39-51.

Morgan, D., Iverson, B. & Botsch, M. (2012). Subprime foreclosures and the 2005 bankruptcy reform. *Economic Policy Review*, 18, 47–57.

Ponticelli, J., & Alencar, L. S. (2016). Court enforcement, bank loans, and firm investment: evidence from a bankruptcy reform in Brazil. *The Quarterly Journal of Economics*, 131(3), 1365-1413.

Qian, J., & Strahan, P. E. (2007). How laws and institutions shape financial contracts: The case of bank loans. *The Journal of Finance*, 62(6), 2803-2834.

Rajan, R. G., & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *The Journal of Finance*, 50(5), 1421-1460.

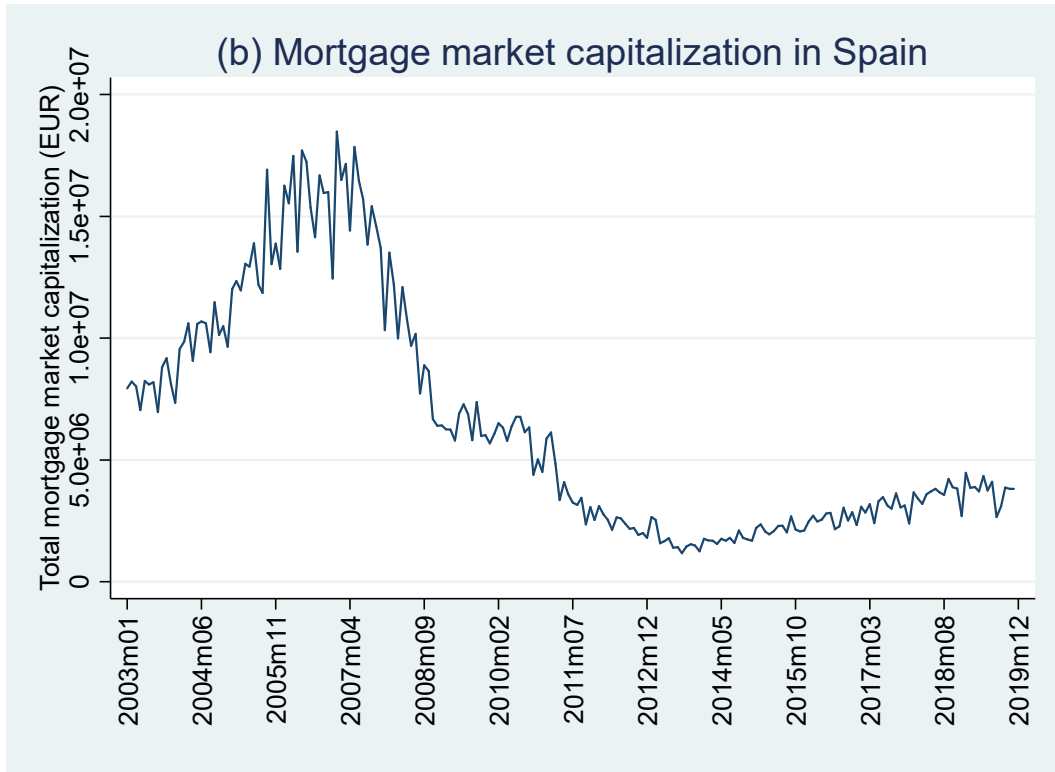
Schwartz, A., & Scott, R. E. (2003). Contract theory and the limits of contract law. *Yale LJ*, 113, 541.

Weiss, N. E. & Jones, K. (2017). An Overview of the Housing Finance System in the US. Congressional Research Service.

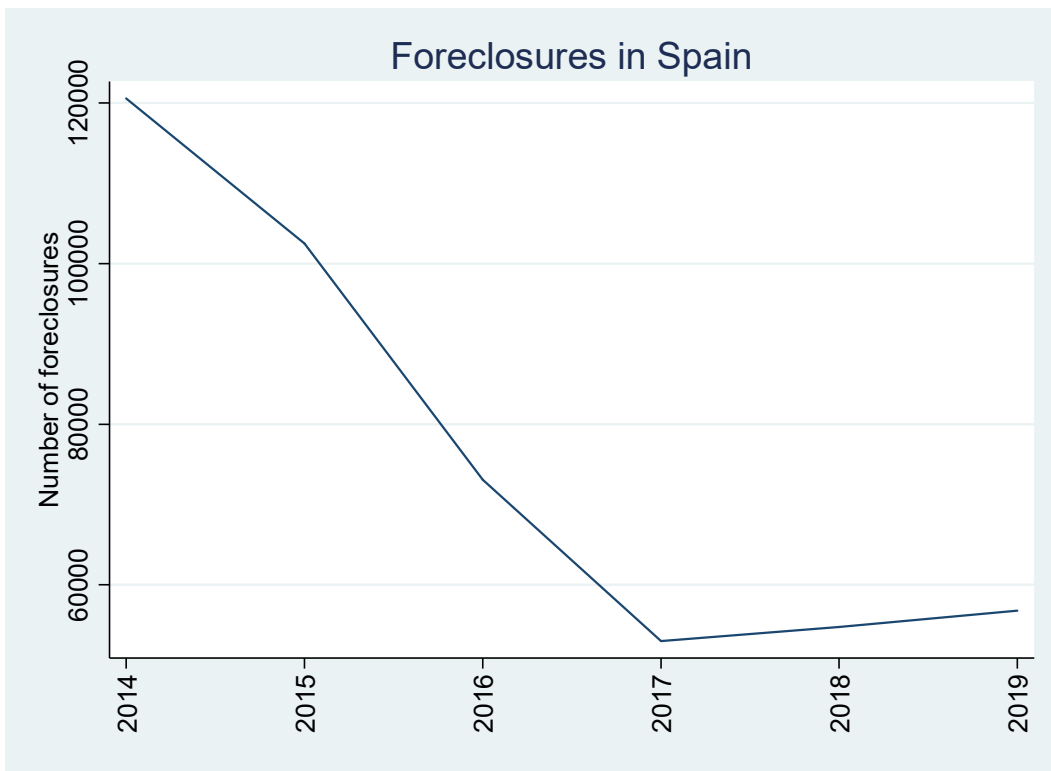
Wooldridge, J.M. (2002). *Econometric Analysis of Cross-Section and Panel Data*. Cambridge, MA: MIT Press.

8. Appendix

Graph 7



Graph 8



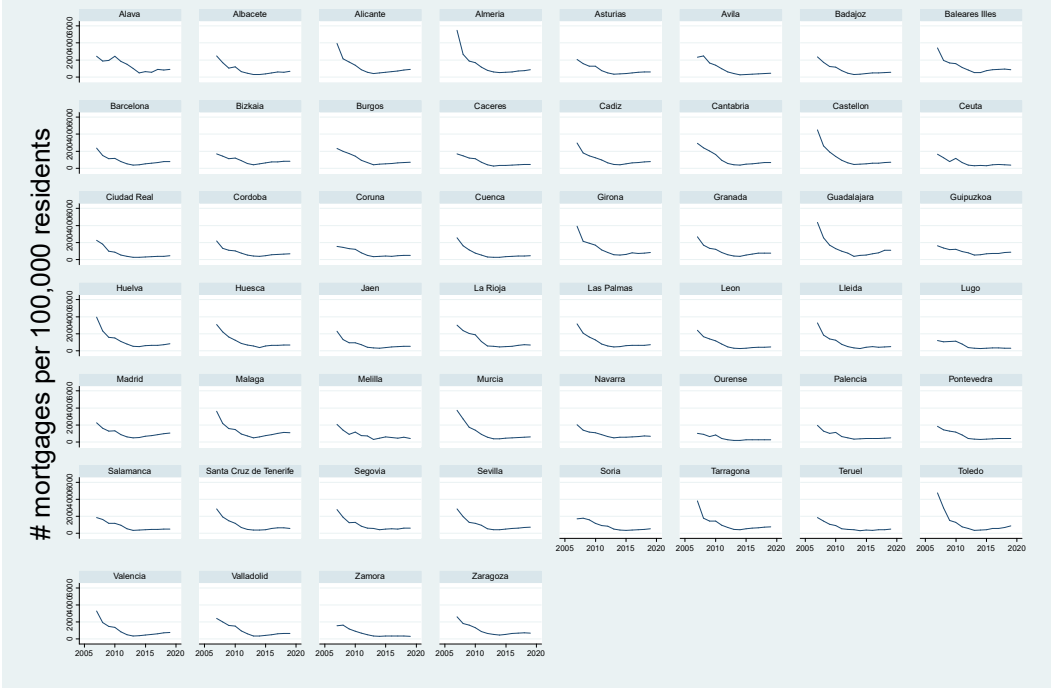
Graph 9

Foreclosures across Spanish provinces



Graph 10

Mortgage density across Spanish provinces



Graph 11

